

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

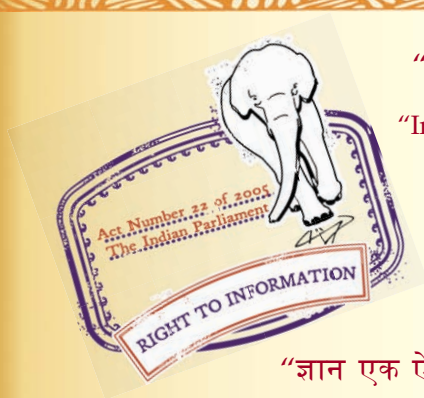
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4362 (1979): Number Plate Lighting Devices for
Automobiles [TED 11: Automotive Electrical Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 4362 - 1979
(Reaffirmed 1995)

Indian Standard
SPECIFICATION FOR
NUMBER PLATE LIGHTING DEVICES
FOR AUTOMOBILES

(*First Revision*)

First Reprint OCTOBER 1997

UDC 628.971.85 : 629.113.018.815

© *Copyright* 1980

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR NUMBER PLATE LIGHTING DEVICES FOR AUTOMOBILES (*First Revision*)

Automobile Electrical Equipment Sectional Committee, ETDC 14

Chairman

SHRI B. S. V. RAO

Representing

The Automotive Research Association of India,
Pune

Members

SHRI Y. M. BALAKRISHNA	Motor Industries Co Ltd, Bangalore
SHRI M. S. S. JOIS (<i>Alternate</i>)	
SHRI J. V. BAPURAJ	The Development Commissioner, Small Scale Industries, New Delhi
SHRI B. S. BHAGOWALIA	Tata Engineering & Locomotive Co Ltd, Jamshedpur
SHRI K. S. KELKAR (<i>Alternate</i>)	
SHRI A. B. BHAMARE	Central Institute of Road Transport (Training & Research), Pune
SHRI R. BHANDARI	J.M.A. Industries Pvt Ltd, New Delhi
SHRI P. S. PATTABHIRAMAN	
(<i>Alternate</i>)	
SHRI S. C. BHAR	Hindustan Motors Ltd, Calcutta
SHRI R. S. CHANDHOKE	Vehicles Research & Development Establishment (Ministry of Defence), Ahmednagar
MAJ DILBAGH RAI (<i>Alternate</i>)	
SHRI S. S. DATE	Globe Auto Electricals Ltd, Bombay
SHRI S. L. SARAF (<i>Alternate</i>)	
LT-COL K. P. DESWAL	Department of Defence Production [Ministry of Defence (DGI)], New Delhi
LT-COL. RANJIT SINGH (<i>Alternate</i>)	
SHRI P. K. JAIN	Prestolite of India Ltd, New Delhi
SHRI R. L. BANSAL (<i>Alternate</i>)	
SHRI N. M. JOBANPUTRA	Mahindra & Mahindra Ltd, Bombay
SHRI P. B. KERKAR	Bombay Electric Supply & Transport Undertaking, Bombay
SHRI M. J. MANTRI	Autometers Ltd, Ballabgarh
SHRI A. K. CHOPRA (<i>Alternate</i>)	

(*Continued on page 2*)

© Copyright 1980

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI VEPA A. MURARI	Lucas-TVS Ltd, Madras
SHRI V. S. MANI (<i>Alternate</i>)	
SHRI K. MUTHU SUBRAMANIAM	Ashok Leyland Ltd, Madras
SHRI O. SUDARSHAN (<i>Alternate</i>)	
CDR B. K. S NAIR	International Instruments Pvt Ltd, Bangalore
SHRI R. KALYANASUNDARAM	
(<i>Alternate</i>)	
SHRI K. K. SHARMA	National Test House, Calcutta
SHRI G. BHATTACHARYA (<i>Alternate</i>)	
SHRI L. SRINIVASA MADHAVAN	Standard Motor Products of India Ltd. Madras
SHRI K. RAVINDRA RAO (<i>Alternate</i>)	
SHRI SUSHIL KUMAR	Directorate General of Technical Development, New Delhi
SHRI S. K. BHARIJI (<i>Alternate</i>)	
SHRI V. P. TILAK	Premier Automobiles Ltd, Bombay
SHRI T. S. PILLAY (<i>Alternate</i>)	
SHRI H. V. VAZE	Maharashtra State Road Transport Corporation, Bombay
SHRI S. P. SACHDEV, Director (Elec tech)	Director General, BIS (<i>Ex-officio Member</i>)

Secretary

SHRI DIPAK DASDE
Assistant Director (Elec tech), BIS

Indian Standard
SPECIFICATION FOR
NUMBER PLATE LIGHTING DEVICES
FOR AUTOMOBILES
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 August 1979, after the draft finalized by the Automobile Electrical Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was first published in 1967 covering recommendations for lighting of number plates for automobiles. It has now been possible to prepare a complete standard covering basic mechanical, electrical and photometric requirements of number plate lighting devices used on automobiles. Opportunity has also been utilized during this revision to bring this standard in line with the latest international practices.

0.3 In preparing this standard, assistance has been derived from SAE J587 'Licence plate lamps' issued by Society of Automotive Engineers and from the regulations of United Nations Economic Commission for Europe.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the basic mechanical, electrical and photometric requirements of number plate lighting device(s) used on automobiles.

2. TERMINOLOGY

2.0 For the purpose of this standard following definitions shall apply.

*Rules for rounding off numerical values (*revised*).

2.1 Number Plate Light -- A lighting device, used to illuminate the number plate of a vehicle. If a tail light is combined with a number plate light the combination shall also meet the requirements of this device.

2.2 Lamp — An individual assembly which contains a source of light.

2.3 Light Unit — An assembly which comprises of lamp, holder, reflector and the lens.

2.4 Device -- Any piece of equipment or mechanism designed to serve a special purpose or perform a special function.

2.5 Type Tests — Tests carried out to prove conformity with the specifications. These are intended to prove the general quality and design of the given type of lighting device.

2.6 Acceptance Tests -- Tests carried out on the samples taken from a lot for the purpose of acceptance of the lot.

2.7 Routine Tests — Tests carried out on each item to check the requirements which are likely to vary during production.

3. MATERIAL, DESIGN, CONSTRUCTION AND WORKMANSHIP

3.1 Number plate lamps shall comply with the general requirements specified in IS : 3105-1966*.

4. COLOUR

4.1 The light emitted by the lamp shall be white so that there is no apparent change in the colour of the number plate.

5. GENERAL REQUIREMENTS AND CONDITIONS

5.1 Requirements of number plate and number plate holder shall be as given in 5.1.1.

5.1.1 The number plate holder design should be such that when mounted on vehicle as intended, the angle between the plane of the number plate and the plane on which the vehicle stands shall not exceed $90 \pm 15^\circ$.

5.2 Conditions for Lamp(s)

5.2.1 The number plate lamp(s) for vehicles other than motorcycles, scooters and motor driven cycles (mopeds) shall be of such size and design as to provide illumination on all parts of a 150×300 mm test plate. Number plate lamp(s) for motor-cycles, scooters and motor driven cycles shall be of such a size and design as to provide illumination on all parts of a 100×180 mm test plate. The light rays shall reach all portions of an imaginary plate of the same size at least 25 mm ahead of the actual test plate measured perpendicular to the plane of plate.

*General requirements for automobile lighting and signalling devices.

5.2.2 The number plate lamp or lamps for vehicles other than motor-cycles, scooters and motor driven cycles shall be mounted so as to illuminate the plate from the top or sides.

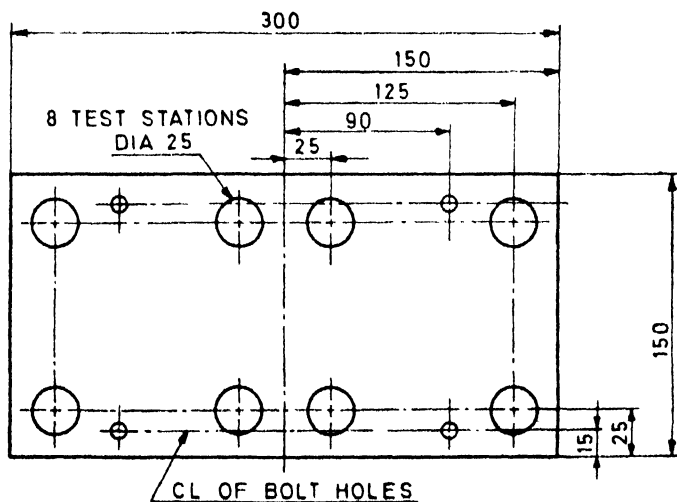
5.2.3 When a single lamp is used to illuminate the plate, the lamp and number plate holder shall bear such relation to each other that at no point on the plate shall the incident light make an angle of less than 8° to the plane of the plate.

5.2.4 When two or more lamps are used to illuminate the plate, the minimum 8° incident angle shall apply only to that portion of the plate which the particular lamp is designed to illuminate.

5.2.5 All candela measurements shall be made on a rectangular test plate of clean, white blotting paper mounted on the number plate holder in the position ordinarily taken by the number plate. The plane of the plate shall be 2 mm above the plane of the number plate holder.

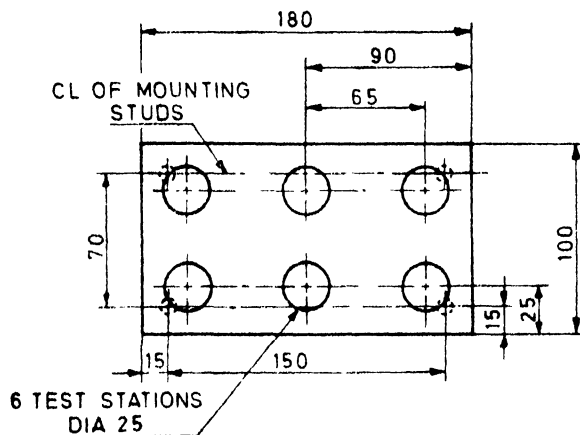
5.2.6 No direct light from the number plate lamp should fall on an observer located at a distance of 20 m and at a height of 1 m above the surface on which the related vehicle rests.

5.2.7 For lamps used on vehicles other than motor cycles, scooters and motor driven cycles, the test stations shall be located on the face of the test plate as shown in Fig. 1. For lamps used on motor-cycles, scooters, and motor driven cycles, the test stations shall be located on the face of the test plate as shown in Fig. 2.



All dimensions in millimetres.

FIG. 1 TEST PLATE FOR VEHICLES OTHER THAN MOTOR CYCLES, SCOOTERS AND MOTOR DRIVEN CYCLES (MOPEDS)



All dimensions in millimetres.

FIG. 2 TEST PLATE FOR MOTOR CYCLES, SCOOTERS AND
MOTOR DRIVEN CYCLES (MOPEDS)

6. MARKING

6.1 Each number plate lighting device shall be distinctly and indelibly marked with the following:

- a) Trade-name or mark (if any) of the manufacturer,
- b) Type or types of lamp,
- c) Wattage of the lamp,
- d) Month and year of manufacture, and
- e) Country of manufacture.

6.2 Each number plate lighting device may also be marked with Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7. TESTS

7.0 Classification of Tests

7.0.1 Type Tests — The following shall constitute type tests:

- a) Visual examination (*see* 7.1),
- b) Performance test (*see* 7.2),
- c) Photometric test (*see* 7.3),
- d) Vibration test (*see* 7.4),
- e) Moisture test for adequate drainage (*see* 7.5),
- f) Dust test for seals and gaskets (*see* 7.6),
- g) Salt spray test (*see* 7.7),
- h) Warpage test (*see* 7.8),
- j) Test for resistance to oil (*see* 7.9), and
- k) Plastic stability test for units with plastic lenses or parts (*see* 7.10).

7.0.2 Criteria for Approval — Nine samples shall be submitted for type testing together with the relevant data. The testing authority shall issue a type approval certificate if the samples for illuminating the number plate are found to comply with the requirements of tests given in 7.0.1.

7.0.3 After visual examination, all the samples shall be subjected to photometric test (*see* 7.3). They shall then be subjected to the tests in the following manner:

Performance test	1 sample
Vibration test	2 samples
Moisture test for adequate drainage	2 samples
Dust test for seals and gaskets	2 samples
Salt spray test	2 samples

For number plate lights with plastic components, one additional sample each is to be subjected to resistance to oil test, warpage test and plastic stability test.

7.0.4 In case of failure of one or more type tests, the testing authority may call for fresh samples not exceeding twice the number of original samples and subject them to the test(s) in which failure occurred. If, one repeat test(s) no failure occurs, the tests may be considered to have been satisfied.

7.0.5 Acceptance Tests — The acceptance tests shall constitute:

- a) Visual examination (*see 7.1*),
- b) Performance test (*see 7.2*),
- c) Photometric test (*see 7.3*), and
- d) Vibration test (*see 7.4*).

NOTE — The number of samples for acceptance tests shall be as agreed upon between the purchaser and the manufacturer. However, the recommended plan of sampling is given in Appendix A.

7.0.6 Routine Tests — The following shall constitute routine tests:

- a) Visual examination (*see 7.1*), and
- b) Performance test (*see 7.2*).

7.1 Visual Examination — All number plate lamps shall be examined for good workmanship and finish.

7.2 Performance Test — Number plate lamps shall be tested for electrical contact and satisfactory operation.

7.3 Photometric Test

7.3.1 Bulbs for Photometric Test — Unless otherwise specified, bulbs used in the test shall be representative of standard bulbs. They shall be selected for accuracy in accordance with IS:1606-1979*. The filament heights and other dimensions shall also be in accordance with IS: 1606-1979*. During test, the bulbs shall be operated at their rated lumen output, except otherwise specified.

7.3.2 Photometric Test Requirements — The illumination on each of the stations on the test plate shall be at least 8 lux. The ratio of maximum to minimum illumination shall not exceed 20 : 1 for the 150 × 300 mm plate and shall not exceed 15 : 1 for 100 × 180 mm plate. The average of the two highest and two lowest illumination values recorded at 8 test stations in the test plate of Fig. 1 shall be taken as maximum and minimum respectively. The highest illumination value and the average of the two lowest illumination values recorded at the 6 test stations in the test plate of Fig. 2 shall be taken as maximum and minimum respectively.

7.3.3 Photometric Test Procedure — The lamp and the number plate arrangement while carrying out this test shall be as intended to be mounted on the vehicle.

The luminance shall be measured with a visual photometer in which the number plate is viewed through a small telescope which has centrally in its field of view a small comparison spot, obscuring not more than 1° cone

*Specification for automobile lamps (*second revision*).

of this field. The comparison spot is illuminated to a sensibly uniform lance by a small electric lamp, the luminous intensity of which may be adjusted. The luminance of the comparison spot is to be capable of variation by suitable means, for example, neutral wedges, so as to be made to match that of the number plate whose luminance is required. The device which alters the luminance of the comparison spot is calibrated so that the luminance of the spot, and hence that of the number plate with which it is matched, may be determined.

7.3.3.1 The errors in the indication of the instrument at any point within the effective range shall not exceed 20 percent of the indication.

7.4 Vibration Test — This test shall be carried out as specified in **5.1.5** of IS:3105-1966*.

7.5 Moisture Test for Adequate Drainage — This test shall be carried out as specified in **5.1.9** of IS:3105-1966*.

7.6 Dust Test for Seals and Gaskets — This test shall be carried out as specified in **5.1.8** of IS:3105-1966*.

7.7 Salt Spray Test — The salt spray test shall be conducted as given in Appendix B of IS:3105-1966*.

7.8 Warpage Test for Units with Plastic Components — This test shall be conducted as specified in **5.1.10** of IS:3105-1966*.

7.9 Test for Resistance to Oil — This test shall be carried out as given in **5.1.6** of IS:3105-1966*.

7.10 Plastic Stability Test for Units with Plastic Components — This test shall be carried out as specified in **5.1.11** of IS:3105-1966*.

APPENDIX A

(Clause 7.0.5)

SAMPLING OF LIGHTING DEVICES

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the automobile number plate lighting devices of the same type and manufactured under similar conditions of production shall be grouped together to constitute a lot.

*General requirements for automobile lighting and signalling devices.

A-1.2 The number of lighting devices to be selected from a lot shall depend upon the lot size and shall be in accordance with col 1 and 2 of Table 1.

A-1.2.1 These lighting devices shall be selected from the lot at random. In order to ensure the randomness of selection, procedures given in IS:4905-1968* may be followed.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 The automobile number plate lighting devices selected according to col 1 and 2 of Table 1 shall be subjected to the acceptance tests mentioned in 7.0.5. The lot shall be considered as conforming to the requirements of acceptance tests if the number of defectives found in the sample is less than or equal to the corresponding permissible number given in col 3 of Table 1; otherwise the lot shall be rejected.

**TABLE 1 SIZE OF SAMPLE AND PERMISSIBLE
 NUMBER OF DEFECTIVES**

(Clauses A-1.2 and A-2.1)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES
(1)	(2)	(3)
Up to 150	8	1
151 to 500	13	1
501 to 1 000	20	2
1 001 and above	32	3

*Methods for random sampling.



AMENDMENT NO. 1 MARCH 1983

TO

IS : 4362-1979 SPECIFICATION FOR NUMBER
PLATE LIGHTING DEVICES FOR AUTOMOBILES

(*First Revision*)

Alterations

(*Page 4, clause 3.1, line 2*) — Substitute ' IS : 3105-1980* ' for ' IS : 3105-1966* '.

(*Page 4, foot-note with ' * ' mark*) — Substitute the following foot-note for the existing:

' *General requirements for automobile lighting and signalling devices (*first revision*). '

(*Page 7, clause 7.0.2, line 1*) — Substitute ' Ten ' for ' Nine '.

(*Page 9, clauses 7.4 to 7.10*) — Substitute the following for the existing clauses:

7.4 Vibration Test — This test shall be carried out as specified in 5.4 of IS : 3105-1980*.

7.5 Moisture Test for Adequate Drainage — This test shall be carried out as specified in 5.9 of IS : 3105-1980*.

7.6 Dust Test for Seals and Gaskets — This test shall be carried out as specified in 5.8 of IS : 3105-1980*.

7.7 Salt Spray Test — The salt spray test shall be conducted as given in Appendix C of IS : 1884-1981†.

7.8 Warpage Test for Units with Plastic Components — This test shall be conducted as specified in 5.10 of IS : 3105-1980*.

7.9 Test for Resistance to Oil — This test shall be carried out as given in 5.5 of IS : 3105-1980*.

7.10 Plastic Stability Test for Units with Plastic Components — This test shall be carried out as specified in 5.11 of IS : 3105-1980*.

(*Page 9, foot-note with ' * ' mark*) — Substitute the following foot notes for the existing foot-note:

' *General requirements for automobile lighting and signalling devices (*first revision*). '

†Specification for electric horns for automobiles (*second revision*). '

Addenda

[*Page 7, clause 7.0.1(k)*] — Add the following test after (k):

‘ m) Drop test (*see 7.11*) ’.

(*Page 7, clause 7.0.3, line 8, Salt Spray Test*) — Add the following new test after ‘ Self spray test ’:

‘ Drop test 1 sample ’.

(*Page 9, clause 7.10*) — Add the following new clause after 7.10.

‘ 7.11 Drop Test — This test shall be carried out as specified in 5.13 of IS : 3105-1980*.’

(ETDC 14)

AMENDMENT NO. 2 AUGUST 1992
TO
IS 4362 : 1979 SPECIFICATION FOR NUMBER PLATE
LIGHTING DEVICES FOR AUTOMOBILES

(First Revision)

(*Page 4, clause 5.2.1, line 3*) — Substitute the following for the existing matter:

'520 × 120 or 290 × 210 mm' for '150 × 300 mm'.

(*Page 4, clause 5.2.1, line 6*) — Substitute the following for the existing matter:

'100 × 175 mm' for '100 × 180 mm'

(*Page 5, clause 5.2.2.*) — Delete.

(TED 11)

Printed at Dee Kay Printers, New Delhi-110015, India

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha
(Common to all Offices)

Central Laboratory:

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

Telephone

8-77 00 32

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Manikola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),
MUMBAI 400093 832 92 95

Branch Offices::

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraaja Square,
BANGALORE 560002 222 39 71